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ABSTRACT

This module on computing piecework, one in a series on the needle trades, contains the following components: an introduction, directions, an objective, learning activities, student information, student self-check, check-out activities, and an instructor's final checklist. The module presents information on the piecework pay plan, such as determining hourly quotas, determining earnings per bundle, and calculating the incentive pay plan. The material is illustrated with line drawings. (KC)

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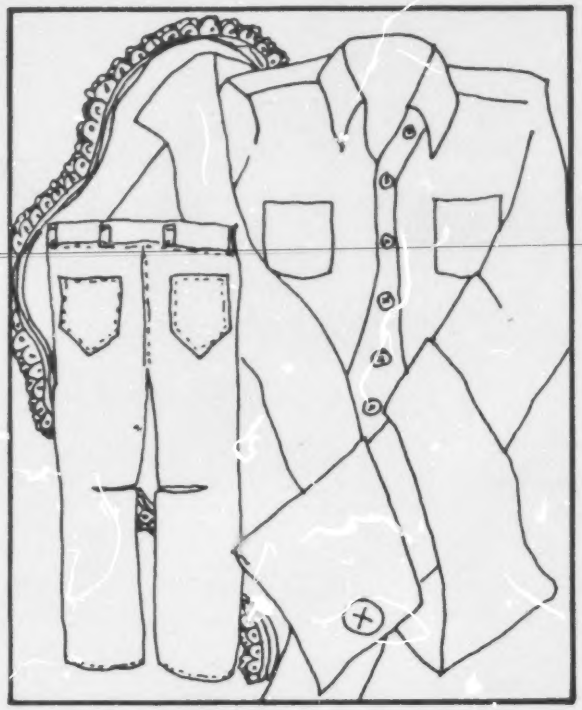

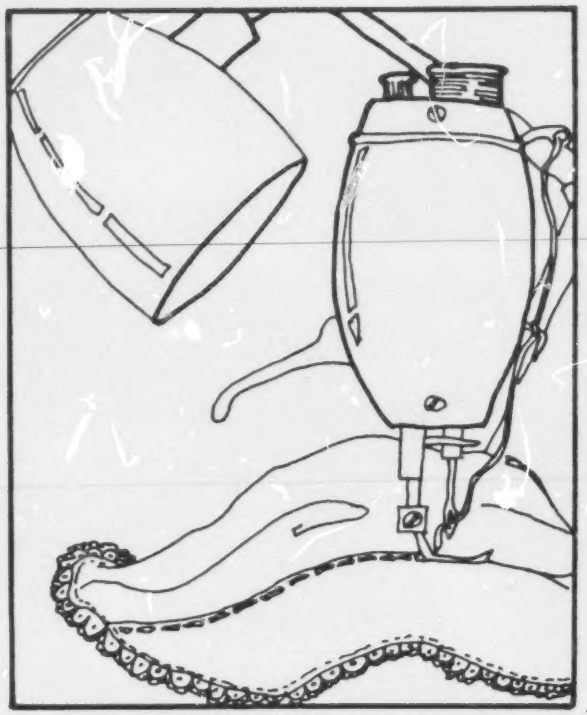

USING MATHEMATICS IN THE NEEDLE TRADES

INTRODUCTION

Opportunities to earn money in the industrial sewing industry generally increase as you increase your skills. Many industries operate on the piecework incentive pay plan. In this module you will learn about [illegible] pay plan and you will also learn to work math problems that will be helpful to you as an industrial sewing machine operator.

DIRECTIONS

Read the Objective. If you think that you can accomplish this Objective now, turn to the Check-Out Activity and follow the instructions.

If you feel you are not able to accomplish this Objective now, look at the Learning Activities. Begin the Learning Activities and as soon as you feel you are ready, turn to the Check-Out Activity and follow the instructions.

OBJECTIVE

Given math problems relating to the piecework incentive pay plan, work the problems with 100 per cent accuracy.

LEARNING ACTIVITIES

1. READ Student Information, PIECEWORK PAY PLAN.
2. READ Student Information, USING MATHEMATICS IN THE NEEDLE TRADES.
3. COMPLETE Student Self-Check, PIECEWORK PAY PLAN.
4. TURN to the Check-Out Activity and follow the instructions.

STUDENT INFORMATION

Piecework Pay Plan

The piecework pay plan is a plan which pays the operator more money as the operator does more work. The plan is designed to provide operators with the desire to be more productive. All work done must be of a certain quality performed by a specified machine and method.

Operators know in advance how much the employer pays for piecework. Time studies are made by the employer to determine the piecework rate. Minimum standards are the very least amount of production that the supervisor will accept.

One example of a way to compute salary is to multiply a fixed price per dozen or per hundred of items completed. Another way used by some sewing plants is to have a standard amount of production per hour or per minute. Whichever method is used, the salary comes out to be the same. One method is no more beneficial than the other.

In industry, for example, an operator should be able to topstitch 300 collars per hour. Three hundred is known as the hourly quota, or acceptable production rate of an operator. Let's say that the piece rate on the standard collar is approximately $4 per hour. If you met your hourly quota by the end of the day, you will have topstitched 2400 collars. How much money would you have made?

$ 4.00 per hour
x 8 hours
$32.00

For another example, the operator may be paid at the rate of 20 cents for every piece of work completed. If 200 pieces of work were completed in an 8-hour day, the operator woud have earned $40.

$ 0.20 pay per piece
x 200 pieces done
$40.00

When you are first employed by an industrial sewing plant, the management will allow you a certain period of time to meet sewing plant minimum standards. Frequently a beginning operator will be paid by the hour. For example, the minimum pay may be $3.10 per hour. For an 8-hour day, a beginning employee would be paid $24.80.

$ 3.10 per hour
x 8 hours
$ 24.80

If the new employee had been able to meet minimum standards on topstitching collars, how much would the employee have earned? Minimum standards were set at $4 per 300 collars per hour.

$ 4.00 per hour
x 8 hours
$ 32.00

Once the employee realizes that the pay is increased as one's production increases, the incentive pay plan provides the worker with the desire to meet and/or surpass the quota.

STUDENT INFORMATION

Using Mathematics in the Needle Trades

You have read about the piecework incentive plan in industrial sewing. You also were shown examples of several math problems. Now, you will have an opportunity to work different types of problems you may need to solve as an operator.

Determining Hourly Quota

Your hourly quota is the number of pieces of work you must complete to earn a specific amount of money per hour. For example, an operation pays $0.035 per piece and you want to earn $3.50 per hour. Divide the amount you want to earn by the amount you are paid per piece.

$$.035 \overline{)\,3.50} \quad = \quad .035 \overline{)\,3\,500}^{\,100}$$

In this case, you must complete 100 pieces in an hour to earn $3.50 per hour. One hundred, then, is the hourly quota for this particular problem.

Determining Completions per Minute

If you completed 120 pieces in 1 hour, you can now determine the average number of pieces you completed per minute. By simply dividing the number of pieces you completed in 1 hour (120 pieces) by 60 (60 minutes in each hour), you can calculate your average number completed per minute.

$$60 \overline{)\,120}^{\,2} \quad \text{pieces completed per minute}$$
$$120$$

Determining Earnings Per Bundle

If a bundle contains 10 garments and you are paid $0.25 per piece, how much will you make if you complete one bundle?

$$\begin{array}{r} 10 \text{ garments per bundle} \\ \times\ .25 \text{ pay per piece (garment)} \\ \hline 50 \\ 20 \\ \hline \$\ 2.50 \text{ per bundle} \end{array}$$

If you completed 2 bundles per hour, you can determine your hourly earnings.

$$\begin{array}{r} \$2.50 \text{ per bundle} \\ \times\ 2 \text{ bundles per hour} \\ \hline \$5.00 \text{ per hour} \end{array}$$

STUDENT SELF-CHECK

Piecework Pay Plan

Write the answers to the following statements on a separate sheet of paper.

1. The piecework pay plan is one which pays the operator more money as the operator does less work. (True or false)

2. If production for topstitching collars is 300 per hour, _____ is the hourly quota.

3. Operators do not know in advance how much the employer pays for piecework. (True or false)

4. Piecework rate is based on time studies made by the employer. (True or false)

5. The incentive pay plan provides a worker with the desire to meet and/or surpass the quota. (True or false)

CHECK-OUT ACTIVITIES

The statement below explains the activities you must be able to complete in order to finish this module. After you go through the activities, your instructor will rate your performance using the Instructor's Final Checklist, USING MATHEMATICS IN THE NEEDLE TRADES.

Your instructor will provide you with math problems relating to the piecework incentive pay plan. Work the problems on a separate sheet of paper.

CHECK-OUT ACTIVITY

1. If an operator completed 100 pieces in one day and was paid $0.30 per piece, how much did the operator earn in one day?

2. If an operator was just beginning to work in a plant and the wage was $3.10 per hour, how much would the operator earn in an 8-hour day?

3. If an operation pays $0.05 per piece, how many pieces must the operator finish in an hour to earn $4 per hour?

4. If each bundle contains 20 garments and the operator is paid $0.05 per piece, how many bundles must be completed in an hour to make $4 per hour?

Student _____

Date _____

Instructor's Final Checklist

Check the student's performance in the following elements of using mathematics in the needle trades.

Place an X in the appropriate box indicating not accomplished, partially accomplished, or fully accomplished. If, because of special circumstances, the item was impossible to complete, place an X in the "Not Applicable" box.

Performance Level: All items must receive a rating of FULLY ACCOMPLISHED (or Not Applicable). If any items are rated Not Accomplished or Partially Accomplished, the student and instructor will discuss this and decide which learning activities must be repeated.

	Student Performance			
	Not Applicable	Not Accomplished	Partially Accomplished	Fully Accomplished
The student:				
Worked problems with 100 per cent accuracy.	( )	( )	( )	( )